

## CLAIMS

1. A self-lubricating plastics material for sealing elements, comprising a wear-resistant polymer matrix in which are dispersed microcapsules containing a lubricating agent.
2. A material according to claim 1, characterised in that said polymer matrix comprises a polyketone.
3. A material according to claim 2, characterised in that said polyketone is an aromatic polyketone.
4. A material according to claim 3, characterised in that said aromatic polyketone is polyetherether ketone (PEEK).
5. A material according to claim 1, characterised in that said polymer matrix comprises a resin selected from among polybutadiene-styrene (PBS), polytetrafluoroethylene (PTFE) and mixtures thereof.
6. A material according to any one of the preceding claims 1-5, characterised in that said microcapsules comprise a shell of polyoxymethylene urea (PMU).
7. A material according to any one of the preceding claims 1-6, characterised in that said microcapsules have an average diameter of between 5 and 500  $\mu$ .

8. A material according to any one of the preceding claims 1-7, characterised in that said microcapsules are dispersed in said polymer matrix in a ratio by weight of between 2 and 30 wt.%.

5 9. A material according to any one of the preceding claims 1-8, characterised in that said lubricant incorporated in the microcapsules is an oil which is low in acidity.

10 10. A material according to any one of the preceding claims 1-9, characterised in that said lubricant is a fluid lubricant which has a viscosity within the range between 20 and 250 cSt.

15 11. A material according to any one of the preceding claims 1-10, characterised in that said lubricant further comprises an additive or filler to increase mechanical strength or thermal conductivity.

12. A material according to claim 11, characterised in that said additive is a microelement selected from the group consisting of zinc, boron and mixtures thereof.

20 13. Use of a material according to any one of the preceding claims 1-12 for reducing friction.

14. Use of a material according to any one of the preceding claims 1-12 for reducing wear on adjacent surfaces of elements in motion.

15. Use of a material according to any one of claims 1-12 as a self-lubricating material.

16. Use of a material according to according to any one of the preceding claims 1-12 as a self-lubricating  
5 sealing element with a reduced wear rate.

17. Use according to claim 16 in which said sealing element is a sealing ring for a piston in a reciprocating compressor.

18. A method for reducing the friction or wear of  
10 adjacent elements in motion, in which one of the adjacent surfaces of said sliding elements comprises a self-lubricating material according to any one of the preceding claims 1-12.

19. A method according to claim 18 in which one element  
15 of the sliding pair is based on metal.